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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FOX, DAVID T

ART UNIT

PAPER NUMBER

1638

DATE MAILED: 10/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/701,023	YE ET AL.	
	Examiner	Art Unit	
	David T. Fox	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 7-12, 16, 20, 24 and 28-53 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 is/are allowed.
- 6) ☒ Claim(s) 4-6, 13-15, 17-19, 21-23, 25-27, 54-57 and 59-62 is/are rejected.
- 7) ☒ Claim(s) 58 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Any grounds of rejection not repeated below have been withdrawn in view of the amendment of 11 July 2003 and accompanying arguments, and the declaration under 37 CFR 1.131 of 11 July 2003.

Claims 18, 22-23 and 26-27 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims remain indefinite in their recitation of "a nucleic acid sequence" as stated on page 2, bottom paragraph, of the last Office action. Replacement of "a" with -- the -- in line 3 of claims 18 and 22-23, and in line 4 of claims 26-27, would obviate this rejection.

Claims 4-6 remain, and new claims 54-57 and 59-62 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, as stated on pages 3-5 of the last Office action for claims 4-6.

Claims 4-6 remain, and new claims 54-57 and 59-62 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for claims limited to a nucleic acid from *Arabidopsis thaliana* which comprises the SPOROCTELESS GENE COMPRISING SEQ ID NO:1 (including the coding

sequence of nucleotides 81-1024) or which encodes SEQ ID NO:4, does not reasonably provide enablement for claims broadly drawn to any nucleic acid from any source which hybridizes under conditions of moderate stringency to 40mers of SEQ ID NO:1 or 40mers of sequences which encode SEQ ID NO:4. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims, as stated on pages 5-7 of the last Office action.

Claims 13-15, 17-19, 21-23 and 25-27 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, as stated on pages 7-8 of the last Office action.

Claims 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Rounsley et al (Accession No. B67977 published 09 December 1997).

The claims are broadly drawn to isolated nucleic acid sequences which hybridize under moderately stringent conditions to any portion of at least 40 nucleotides of SEQ ID NO:1 or 2, wherein said isolated nucleic acid sequences have at least about 70% identity to any 40mer portion of SEQ ID NO:1 or 2.

Rounsley et al (Accession No. B67977 published 09 December 1997) teach an isolated nucleic acid with 204 contiguous nucleotides of SEQ ID NO:1, from nucleotide 531 through 735, and 153 contiguous nucleotides of SEQ ID NO:1, from nucleotide 787

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through 940, wherein said nucleic acid sequence has 81.6% local similarity to SEQ ID NO:1 (see enclosed Sequence Search result).

Claims 4-5 remain, and new claims 54-56 and 59-62 are rejected under 35 U.S.C. 102(b) as being anticipated by Weigel et al, as stated on pages 10-11 of the last Office action for claims 4-5.

Claims 4-5 remain, and new claims 54-56 and 59-62 are rejected under 35 U.S.C. 102(b) as being anticipated by Pnueli et al, as stated on page 11 of the last Office action for claims 4-5.

Claims 1-3, 6, 13-15, 17-19, 21-23, 25-27 and 57-58 are deemed free of the prior art, given the failure of the prior art to teach or suggest an isolated nucleic acid molecule comprising SEQ ID NO:1 or 2 or encoding SEQ ID NO:4, or plant transformation therewith for the obtention of seedless or pollenless plants.

Claim 58 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-3 are allowed.

Applicant's arguments filed 11 July 2003, insofar as they pertain to the rejections above have been fully considered but they are not persuasive.

Applicants urge that the written description rejection is improper, given the amendment of the claims to remove SEQ ID NO:3 and to recite at least a 40 nucleotide portion of the other two sequences, the presentation of structural identifiers and a

recitation of a functional characteristic, and the permissibility of hybridization language as evidenced by Example 9 of the Revised Interim Written Description Guidelines).

The Examiner acknowledges that SEQ ID NO:3 has been deleted from the claims, so that the issues raised by this sequence are no longer applicable. However, the Examiner maintains that the claims are not drawn to nucleic acid sequences which comprise 40 nucleotides of SEQ ID NO:1 or 2. Instead, the claims are broadly drawn to any nucleotide sequence which hybridizes under moderately stringent conditions to any 40 nucleotides of SEQ ID NO:1 or 2. As admitted by Applicants on page 13 of the specification, middle paragraph, "selective hybridization will occur when there is at least about 55% homology over a stretch of at least about 14 nucleotides". Thus, the claimed genus encompasses a multitude of nucleic acid molecules which encode a multitude of proteins completely unrelated to SEQ ID NO:4, whose function is unclear. No conserved region of even SEQ ID NO:4 has been identified which is responsible for conferring the sporocyteless phenotype, and no conserved region of SEQ ID NO:1 or 2 has been identified which encodes a protein conferring this phenotype. Furthermore, no particular conserved region (i.e. conserved sequence domain) has been identified among the even broader genus of the hybridizing nucleic acid sequences, wherein said conserved region is correlated with a particular function, as mandated by the Written Description Guidelines and MPEP 2163. Thus, an adequate written description of the broadly claimed genus has not been provided. Applicants' mere recitation of a desired function, in the absence of any proof that the broad genus contains sequences conferring that function, is insufficient.

Regarding Example 9 of the Written Description Guidelines, the Examiner maintains that the instant fact pattern is different from that of Example 9. In Example 9, an *entire* coding sequence was used to isolate related sequences which hybridized thereto under *highly* stringent conditions, wherein said related sequences were demonstrated to encode proteins with the claimed function. In the instant case, as little as 40 nucleotide fragments were utilized under moderately stringent conditions, no proteins were isolated which were encoded by the multitude of recovered nucleic acid molecules, and therefore no function of the encoded proteins was determined.

Applicants are further directed to page 21 of their Response, second paragraph, where they question the ability of a gene with over 80% sequence similarity to SEQ ID NO:1 and over 200 contiguous nucleotides of SEQ ID NO:1 to actually encode a protein involved in meiocyte formation. Such questioning contradicts Applicants' assertions that their even more broadly claimed nucleic acid molecules would in fact encode a protein involved in meiocyte formation.

Applicants urge that the enablement rejection is improper, given the amendment of the claims to narrow their scope, the failure of Spielman et al cited by the Examiner to demonstrate complete failure, the failure of the other references cited by the Examiner to demonstrate unpredictability inherent in plant transformation with Applicants' unrelated gene, and the guidance provided in the specification.

The Examiner maintains that the claims remain quite broad, as stated above. In addition, Applicants' guidance is limited to assertions of the desirability of finding other sporocyteless genes. No guidance is provided regarding the actual obtention of any

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other candidate sporocyteless genes or the evaluation of the function of their encoded proteins, either in the native plant in which they were obtained, or in plants transformed therewith. Furthermore, Spielman et al teach a failure rate of as high as 95%, as admitted by Applicant on page 17 of the Response, third paragraph. Sifting through a 95% probability of failure constitutes undue trial and error experimentation, particularly in view of the lack of guidance presented in the instant specification, as stated above.

Regarding the remaining references cited by the Examiner, these references demonstrate that there is a vast array of homeotic genes having a multitude of unrelated functions, wherein such unrelated genes would be recovered by the moderate hybridization conditions and short probes recited in the claims, wherein plant transformation therewith would not result in Applicants' desired effects.

Applicants urge that the art rejections over Pnueli et al or Weigel et al are improper, given the recitation in the amended claims of portions of at least 40 nucleotides in length. The Examiner maintains that the claims are broadly drawn to any nucleic acid molecule which hybridizes under moderately stringent conditions to any 40 nucleotides of SEQ ID NO:1 or 2. The claims are not drawn to nucleic acid molecules which comprise at least 40 nucleotides of SEQ ID NO:1 or 2.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David T. Fox whose telephone number is (703) 308-0280. The examiner can normally be reached on Monday through Friday from 10:30AM to 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached on (703) 306-3218. The fax phone number for this Group is (703) 872-9306. The after final fax phone number is (703) 872-9307.

September 25, 2003

DAVID T. FOX
PRIMARY EXAMINER
GROUP 180/638
